

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
18 November 2004 (18.11.2004)

PCT

(10) International Publication Number
WO 2004/098564 A3

(51) International Patent Classification⁷: **A61K 9/51**,
31/7036

(21) International Application Number:
PCT/US2004/012755

(22) International Filing Date: 26 April 2004 (26.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/467,400 2 May 2003 (02.05.2003) US

(71) Applicant (for all designated States except US): **THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS** [US/US]; 352 Administration Building, 506 South Wright Street, Urbana, IL 61801 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **POPESCU, Carmen** [RO/US]; 425 Elm 5D, Deerfield, IL 60015 (US). **ONYUKSEL, Hayat** [US/US]; 4146 Clausen Avenue, Western Springs, IL 60558 (US).

(74) Agent: **NAPOLI, James, J.**; Marshall, Gerstein & Borun LLP, 233 S. Wacker Drive, Suite 6300, Sears Tower, Chicago, IL 60606-6357 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
10 February 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: BIODEGRADABLE NANOPARTICLES COMPRISING AN AMINOGLYCOSIDE AND A POLYMER LIKE A POLYSACCHARIDE

(57) Abstract: Nanoparticles of a biodegradable polymer containing a hydrophilic, cationic drug, like streptomycin, and preparations containing the same, are disclosed. Pharmaceutical preparations containing the nanoparticles are administered, preferably orally, to individuals suffering from a disease or condition, and the nanoparticles release the drug, *in vivo*, to treat the disease or condition.



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/012755

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K9/51 A61K31/7036

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, EMBASE, WPI Data, PAJ, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 151 264 A (NGUYEN FREDERIQUE ET AL) 29 September 1992 (1992-09-29) claims 1-8 example 7	1-83
X	US 6 159 502 A (WESTWOOD STEVEN WILLIAM ET AL) 12 December 2000 (2000-12-12) column 7, line 63 - column 8, line 4 column 10, line 16 - line 22 examples 1,2,13 claim 1	1-83



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

27 October 2004

Date of mailing of the international search report

11/11/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Sindel, U

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/012755

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>CALVO P ET AL: "Chitosan and chitosan/ethylene oxide-propylene oxide block copolymer nanoparticles as novel carriers for proteins and vaccines." October 1997 (1997-10), PHARMACEUTICAL RESEARCH. OCT 1997, VOL. 14, NR. 10, PAGE(S) 1431 - 1436 , XP002302912 ISSN: 0724-8741 cited in the application abstract page 1432, column 2, paragraph 4 table 1 page 1432, column 1, paragraph 2 -----</p>	1-83
Y	<p>PANDEY S ET AL: "Biodegradable microspheres of gentamicin sulphate" INDIAN JOURNAL OF PHARMACEUTICAL SCIENCES 1997 INDIA, vol. 59, no. 2, 1997, pages 81-85, XP009038849 ISSN: 0250-474X page 84, column 1, last paragraph -----</p>	1-83
Y	<p>SIVAKUMAR M ET AL: "Preparation, characterization and in-vitro release of gentamicin from coralline hydroxyapatite-chitosan composite microspheres" CARBOHYDRATE POLYMERS, APPLIED SCIENCE PUBLISHERS, LTD. BARKING, GB, vol. 49, no. 3, 15 August 2002 (2002-08-15), pages 281-288, XP004350806 ISSN: 0144-8617 abstract -----</p>	1-83
Y	<p>LIM S T ET AL: "Preparation and evaluation of the in vitro drug release properties and mucoadhesion of novel microspheres of hyaluronic acid and chitosan" JOURNAL OF CONTROLLED RELEASE, ELSEVIER SCIENCE PUBLISHERS B.V., AMSTERDAM, NL, vol. 66, no. 2-3, May 2000 (2000-05), pages 281-292, XP004193075 ISSN: 0168-3659 abstract tables 2,5 -----</p>	1-83

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/012755

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 18-34, 53-78 and 81-83 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US2004/012755

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